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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/751,469	01/06/2004	Jeong-won Lee	Q77017	2348
23373	7590	02/21/2006	EXAMINER	
SUGHRUE MION, PLLC 2100 PENNSYLVANIA AVENUE, N.W. SUITE 800 WASHINGTON, DC 20037			NGUYEN, LINH V	
			ART UNIT	PAPER NUMBER
			2819	

DATE MAILED: 02/21/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/751,469	Applicant(s) LEE ET AL.	
	Examiner Linh V. Nguyen	Art Unit 2819	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 08 December 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-7 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1 is/are rejected.
- 7) ☒ Claim(s) 2-6 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 06 January 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. This office action is in response to communication filed on 12/8/05. Claims 1 – 7 remain on this application.

Response to Arguments

2. Applicant's arguments filed 12/8/05, with respect to claim 1 have been fully considered but they are not persuasive.

Under Remark/Arguments applicant argued that Ueunten (US4,369,410) fails to disclose the "bias circuit part for mirroring the different current, inverting the different current, and producing an inverted different current". Examiner respectfully disagrees from the following:

Fig. 8 [200] of Ueunten discloses a differential amplifier circuit for generating a first differential current I1 and an inverted the different current I3 by the mirror bias circuit Q4 – Q7. Ueunten clearly teaches when a high signal applied to non-invert input terminal 198 of M2 and a low signal applied to invert input terminal 199 of M1, then M1 turns on and M2 turns off, causing the transistor Q5 of the bias mirror current (Q4 – Q7) turns on and Q4, Q6, Q7 transistors of the mirror bias current (Q4 – Q7) turn off, that causing the differential current I1 flows and I3 does not flows. (See on Col. 6 lines 22 – 30). Conversely, with a low signal applied to non-inverting input lead 198 and a high input signal applied to inverting input terminal 199, transistor M1 turns off and M2 turns on, causing the transistor Q5 of the current mirror bias (Q4 – Q7) turn off and Q4, Q6, Q7 transistors of the current mirror bias (Q4 – Q7) turn on, that causing the differential

current I1 does not flow and the inverted different current I3 flows (See Col. 6 lines 61 – 68).

Per explained above, since I1 and I3 are inverting each other (flows or not flows) according to the inverting input and non-inverting input signals of M1 and M2, and the inverting current I1 and I3 produced by the bias current mirror (Q4 – Q7); thereby mirror Q4 – Q7 must be inverting the different current (I1 flows and I3 does not flows, or I1 does not flow and I3 flow) and produce the inverted different current (either I1 or I3).

Applicant's arguments, with respect to claim 2 have been fully considered and are persuasive. The rejection of claim 2 from previous office action has been withdrawn.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claim 1 is rejected under 35 U.S.C. 102(b) as being anticipate by Ueunten U.S. Patent No. 5,412,309.

Regarding claim 1, Fig. 8 of Ueunten discloses a amplifier circuit, comprising: an input circuit part (M1, M2) for outputting a differential current (output current of M1, M2,) proportional to differentiations of input voltages (199, 198); a bias circuit part (Q4 – Q7) for mirroring the differential current (I1 or I3), inverting the differential current (see explained above under response to argument section, and producing an inverted

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differential current (I_1 or I_3); and an output circuit part (202, 203) for adjusting each magnitude of the differential current (I_1 , I_3) based on a predetermined ratio size of MOS transistors ([205-3, 205-2]; [206-1, 206-2]) of the output circuit part (202, 203), to output an adjusted differential current ($I_{out} = 601 \cdot I_1$) and an adjusted inverted differential current ($I_{out} = 601 \cdot I_3$), adding the adjusted differential current and the adjusted inverted differential current (summing at the Node of 222 V_{out}), and producing an output current in a push-pull form (the current output at the summing node 222 is representing the current output in a push-pull form of 202 and 203 respectively).

Allowable Subject Matter

5. Claims 2 – 7 objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

With respect to claim 2, the prior art does not teach a bootsting circuit comprising: a second differentiation circuit for being inputted with the reference voltage and a second input voltage of the input voltages, and outputting a second differential current; and a current mirror circuit for mirroring the first and second differential currents.

Conclusion

6. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

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A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Contact Information

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Linh Van Nguyen whose telephone number is (571) 272-1810. The examiner can normally be reached from 8:30 – 5:00 Monday-Friday. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mr. Rexford Barnie can be reached at (571) 272-7492. The fax phone numbers for the organization where this application or proceeding is assigned are (571-273-8300) for regular communications and (571-273-8300) for After Final communications.

2/6/06

Linh Van Nguyen

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REXFORD BARNIE
SUPERVISORY PATENT EXAMINER